

<p style="text-align: center;">IN THE UNITED STATES PATENT AND TRADEMARK OFFICE</p>	<i>Application Number</i>	
	<i>Filing Date</i>	
	<i>First Named Inventor</i>	Clive Graham COPLEY
	<i>Group Art Unit</i>	
	<i>Examiner Name</i>	
	<i>Attorney Docket Number</i>	1991-209
<p><i>Title of the Invention:</i> MONOCLONAL ANTIBODY TO CEA, CONJUGATES COMPRISING SAID ANTIBODY, AND THEIR THERAPEUTIC USE IN AN ADEPT SYSTEM</p>		

AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to examination of the above-referenced patent application, please enter the amendments summarized below:

Please add a new paragraph before the first paragraph on page 1 as shown below.

Please add the Abstract of the Disclosure as the final page of the application. A separate page with the Abstract of the Disclosure is also attached at the end of this document.

Please cancel claims 1-7, 11-13 and 15 and amend claims 8, 9 and 14 and add new claims 16-22. There are no amendments to claim 10.

Marked-up copies of the original text of the amended claims is attached to this amendment. Material inserted is indicated by redlining (insertion) and material deleted is indicated by strike-out (strike-out).

Changes to Specification

On page 1, after the title and before the first paragraph, please insert the following paragraph:

This application is a divisional of Serial No. 09/171,945, filed October 29, 1998.

Added Abstract of the Disclosure

ABSTRACT OF THE DISCLOSURE

An anti-CEA monoclonal antibody, designated 806.077, of murine origin is useful for the diagnosis and therapy of cancer. The antibody complementarity determining regions have the following sequences: heavy chain CDR1 DBYMH CDR2 WIDPENGDT E YAPKFRG, CDR3 LIYAGYLAMD Y; and light chain CDR1 SASSSVTYMH, CDR2 STSNLAS, CDR3 QQRSTYPLT. The antibody optionally is humanized and can be in the form of a conjugate with either an enzyme, such as carboxypeptidase, or a co-stimulatory molecule such as the extracellular domain of human B7.1.

Clean Copy of All Pending Claims

8 (amended). A polynucleotide sequence encoding a polypeptide comprising an anti-CEA antibody ("806.077 Ab") comprising complementarity determining regions (CDRs) in which the CDRs comprise the following sequences:

a) heavy chain

CDR1 DNYMH (SEQ ID NO: 29)

CDR2 WIDPENGDT E YAPKFRG (SEQ ID NO: 31)

CDR3 LIYAGYLAMD Y (SEQ ID NO: 32); and

b) light chain

CDR1 SASSSVTYMH (SEQ ID NO: 26)

CDR2 STSNLAS (SEQ ID NO: 27)

CDR3 QQRSTYPLT (SEQ ID NO: 28)

9(amended). A vector comprising a polynucleotide as defined in claim 8, 20, 21 or 22.

10. A host cell transformed with a polynucleotide sequence as defined in claim 8 or a transgenic non-human animal or transgenic plant developed from the host cell.

14(amended). A method of making an antibody as defined in claim 8 which comprises:

subjecting a transgenic non-human mammal or a transgenic plant as defined in claim 10 to conditions conducive to expression of the antibody.

16(new). A polynucleotide sequence encoding a polypeptide comprising an antibody conjugate comprising an antibody as defined in claim 8 and an effector moiety.

17(new). A vector comprising a polynucleotide sequence as defined in claim 16.

18(new). A host cell transformed with a polynucleotide sequence as defined in claim 16 or a transgenic non-human animal or transgenic plant developed from the host cell.

19(new). A method of making a conjugate as defined in claim 16, which comprises:
subjecting a host cell, a transgenic non-human mammal or a transgenic plant as defined in claim 18 to conditions conducive to expression of the antibody conjugate.

20(new). A polynucleotide sequence encoding a polypeptide comprising an antibody as defined in claim 8, wherein the heavy chain CDRs 1 and 3 are further defined as:

CDR1 FNIKDNYMH (SEQ ID NO: 30); and
CDR3 HVLIYAGYLA MDY (SEQ ID NO: 33).

21(new). A polynucleotide sequence encoding a polypeptide comprising an antibody as defined in claim 8, said antibody comprising the following, optionally humanized, structure:

a heavy chain variable region sequence (SEQ ID NO:11)

EVQLQQSGAE LVRSGASVKL SCTASGFNIK DNYMHWVKQR	40
PEQGLEWIAW IDPENGDT EY APKFRGKATL TADSSSNTAY	80
LHLSSLTSED TAVYYCHVLI YAGYLAMDYW GQGTSVAVSS	120

and

a light chain variable region sequence (SEQ ID NO:9)

DIELTQSPAI MSASPGEKVT ITCSASSSVT YMHWFQQKPG	40
TSPKLWIYST SNLASGVPAR FSGSGSGTSY SLTISRMEAE	80
DAATYYCQQR STYPLTFGAG TKLELKRA	108

22(new). A polynucleotide sequence encoding a polypeptide comprising a humanized antibody as defined in claim 21, said antibody comprising at least one of the following sequence:

- a heavy chain variable region sequence which is VH1 (SEQ ID NO:55);
 - a light chain variable region sequence which is VK4 (SEQ ID NO:71);
 - a human CH1 heavy chain IgG3 constant region;
 - a human kappa light chain CL region; and
 - a human IgG3 hinge region;
- optionally in the form of a $f(ab')_2$ fragment.

REMARKS

This application is filed as a divisional of USSN 09/171,945. This amendment includes claims cancelled in the parent application. No new matter has been added with this amendment.

RESPECTFULLY SUBMITTED,					
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Attachments: Marked-Up Copies of Amendments

Amended Claims: Version with markings to show changes made

8. A polynucleotide sequence ~~capable of encoding a polypeptide of comprising~~ an anti-CEA antibody ("806.077 Ab") or a conjugate as defined in any preceding claim comprising complementarity determining regions (CDRs) in which the CDRs comprise the following sequences:

a) heavy chain

CDR1 DNYMH (SEQ ID NO: 29)

CDR2 WIDPENGDT E YAPKFRG (SEQ ID NO: 31)

CDR3 LIYAGYLAMD Y (SEQ ID NO: 32); and

b) light chain

CDR1 SASSSVTYMH (SEQ ID NO: 26)

CDR2 STSNLAS (SEQ ID NO: 27)

CDR3 QQRSTYPLT (SEQ ID NO: 28)

9. A vector comprising a polynucleotide as defined in claim 8, 20, 21 or 22.

14. A method of making an antibody or conjugate as defined in any preceding claim 8 which comprises:

a) ~~subjecting a host cell; a transgenic non-human mammal or a transgenic plant as defined in claim 10, or the hybridoma of claim 11, to conditions conducive to expression; and optionally secretion; of the antibody or conjugate; and optionally~~

~~b) at least partially purifying the antibody or conjugate.~~

ABSTRACT OF THE DISCLOSURE

An anti-CEA monoclonal antibody, designated 806.077, of murine origin is useful for the diagnosis and therapy of cancer. The antibody complementarity determining regions have the following sequences: heavy chain CDR1 DBYMH CDR2 WIDPENGDT EYAPKFRG, CDR3 LIYAGYLAMD Y; and light chain CDR1 SASSSVTYMH, CDR2 STSNLAS, CDR3 QQRSTYPLT. The antibody optionally is humanized and can be in the form of a conjugate with either an enzyme, such as carboxypeptidase, or a co-stimulatory molecule such as the extracellular domain of human B7.1.

806.077